UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:

THE PROPOSED PLAN OF ACTION FOR THE SOUTH CAVALCADE STREET HOUSTON SITE

Ryan Civic Center 4501 Elysian Houston, Texas

> Monday, August 29, 1988

The above-entitled matter came on for public hearing, pursuant to notice, at 7:00 p.m.

## APPEARANCES:

On behalf of the Environmental Protection Agency:

LARRY WRIGHT, Chief, Superfund Enforcement JAMES F. PENDERGAST, Remedial Project Officer BILL ECKROADE, Superfund Program ELLEN D. GREENEY, Community Relations Environmental Protection Agency Region VI 1445 Ross Avenue Dallas, Texas 75202-2733

On behalf of the Texas Water Commission:

JOE BROWN, State Superfund Program Stephen F. Austin Building 1700 North Congress Austin, Texas 78701

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## PROCEEDINGS

MR. WRIGHT: I would like to welcome all of you to the South Cavalcade public meeting. My name is Larry Wright, and I am chief of the Superfund enforcement section of EPA Region VI in Dallas.

I have with me tonight Jim Pendergast. Jim is the EPA regional project manager who is overseeing the investigatory work that has been done at the South Cavalcade site.

Bill Eckroade is here out of our Superfund program in our EPA headquarters. Ms. Ellen Greeney is with our community relations scaff, and has assisted with the handout of the materials and sign-in tonight.

Mr. Joe Brown, sitting back here, is with the Texas Water Commission in Austin, and he works in their state Superfund program.

I would like to thank the Ryan Civic Association officials for making this facility available for our use this evening for the meeting.

public comments on alternatives for addressing the current site conditions at the South Cavalcade site. The alternate solutions were addressed -- or evaluated, I am sorry, in a reasibility study report that is available for review at a number of locations that are listed in the handout that you

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should have all received when you came in tonight.

Those locations include here at the Ryan Civic Association; the Houston City Secretary's office; the Houston Central Library; the Houston-Galveston Area Council of Governments; and the Department of Health. The Texas Water Commission offices in Aus . - have a copy, as well as EPA offices in Dallas.

The administrative record file, which contains all of the information the EPA has used to evaluate the site to date, is located for review at the Houston Central Library. The administrative record file is also available for public comment.

EPA will accept written comments on the alternative solutions in the feasibility study through September 19. Written and oral comments can be made tonight; written comments can be mailed to our Dallas office, in care of Ms. Greeney, at the address listed in the handout. If you look on the page entitled Opportunity for Public Comment, you will find Ms. Greeney's address where written comments can be sent.

Everyone who signed in tonight will be put on our mailing list, and any future news releases we have about the site will be mailed to everyone on that list.

We have a couple of presentations to make regarding the site, but following that we will open the

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meeting up to public comments and any questions you have. We request that anybody who makes a comment stand up and identify themselves. If you have any particular affiliation, we would appreciate if you would state that, and then go ahead and ask your questions or make your comments.

We are recording all the presentations here tonight, and we will also record all the questions and comments and responses to those that are made here this evening. From that, we will make a transcript of the meeting, and that transcript will be available in approximately three weeks.

Where possible, we will answer your questions here tonight. But all the questions and comments will be addressed in a response to comment document. That document will be prepared by EPA following completion of the public comment period.

Everyone who makes a comment here tonight and everyone who sends in a written comment will receive a copy of that document that responds to all the comments we receive during the public comment period. EPA will use the comments in selecting a final plan for addressing site conditions.

Before we talk specifically about the alternatives evaluated at the South Cavalcade site, I would

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like to present a brief overview of the Superfund program.
Also, if you will look in your handouts, there is a page
entitled U.S. EPA Superfund Process. That is essentially
what I am going to summarize right now, is this particular
page of information. So I would invite you to read that at
your convenience, as well.

In 1980, Congress passed a law called the Comprehensive Environmental Response, Compensation, and Liability Act. That particular act was amended by Congress in October of '86. That law is commonly called Superfund, and it is administered by EPA.

The act authorizes EPA to use a special fund of money to conduct investigations and to respond to releases of hazardous substances at sites that are placed on what is called the National Priorities List.

Most of the money in that fund comes from taxes on the petrochemical industry. The rest of the money comes from the federal treasury. The fund is reimbursable, and EPA can take legal action to recover costs that are expended from the funds.

Those sites that are placed on the National Priorities List become eligible for funding out of Superfund. Nationwide, there are about 1,200 sites currently on the National Priorities List. Of those 1,200, there are about -- I think there are 71 currently in

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Region VI, which encompasses a five-state area including Texas.

This particular site was proposed to the National Priorities List in 1984, and it was finalized on the list in June of 1986. I have a few slides, and if Ellen will get the lights --

(Pause)

MR. WRIGHT: This slide indicates the stages that we go through in addressing Superfund sites. the first phase includes a full-scale investigation and an evaluation of alternatives that we will be discussing later here this evening for the South Cavalcade site.

The field investigation is called a remedial investigation, and what is done there is extensive sampling to determine the nature and extent of contamination of the site. During the remedial investigation, we sample groundwater, surface water, site soils, and all the different media that might be affected by the site.

We take a look at where any contamination may exist, and where it may have migrated. We evaluate the environmental impact and the health impact of the site, and we use that information to go on into the feasibility study.

In the feasibility study, we identify alternatives for addressing site conditions, and we look at

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a range of alternatives that are prescribed in the
regulations for Superfund. Those alternatives range from
no action, where we just take a look at what would happen
to the site if nothing were done, through alternative
cleanups that include advanced technology such as
incineration or the use of treatment techniques.

The handout that I referred you to earlier has listed in it the alternatives that were evaluated for the South Cavalcade site, and for which we are seeking comments on tonight as part of the public comment period.

Once we complete the public comment period, the comments are part of the evaluation that the regional administrator uses to make a decision as to what the appropriate solution to site problems is.

From that point, we are ready to proceed on to the following stages of design and then actual construction. One of the things we are going to be talking about tonight is the remedy that is favored by the Region for the South Cavalcade site.

Currently, the regional staff favors a combination of in-situ soil flushing and soil washing for treatment of contaminated soil on the site, and extraction of contaminated groundwater, followed by filtration and carbon adsorption.

Following selection of the alternative plan by

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the regional administrator, a remedial design will be started. The remedial design is the actual preparation of engineering plans and specifications that would be used to go out to a contractor to actually then do the work of addressing the site conditions.

The final phase, as shown on this slide here, is

The final phase, as shown on this slide here, is the actual implementation or the construction of the onsite solution. After the cleanup is done, post-closure monitoring of the site is done to ensure that the remedy that is constructed is effective and is doing the job that we thought it would when we picked that particular alternative solution.

In order to conserve the Superfund, voluntary response by potentially responsible parties, or parties such as the private industries and individuals who are responsible for the conditions at the site, is encouraged.

The law requires that EPA make a demand on the potentially responsible parties to see if they will implement the remedy selected for the site. The law defines responsible parties as those who own the property, and for some types of sites, those who generated waste that was disposed at the site.

For this particular site, EPA notified the Koppers Company as a former owner/operator of the site, and other parties as current operators of the site, of their

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potential liability for the site conditions under terms of the Superfund law.

Koppers conducted the investigation and the feasibility study under terms of an administrative order on consent, and this work was done under EPA and TWC oversight.

After we select the final cleanup plan for the site, " will go back to the potentially responsible parties to attempt to have them conduct the remedy selected by the regional administrator. Any such agreement we reach would have to be put into the form of a consent decree that would be entered in U.S. district court, and EPA would be conducting oversight of the work that would be done under that consent decree. We would also, as I indicated earlier, monitor the activities over the long term to make sure that the remedy was effective.

If we are unable to reach agreement with the potentially responsible parties to do the actual cleanup work, then we have to explore other options. One option is to use the Superfund, or the money out of the Superfund, to go in and do the work purselves, and then attempt to cost recover the funds so we could put the money back into the Superfund account. Another option, if we can't reach a voluntary agreement, would be enforcement acti. .

With that, I will go ahead and turn the

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presentation over to Jim, and he will talk about the investigation we conducted, and the feasibility study alternatives that are outlined in the handout and that we are seeking comment on tonight.

MR. PENDERGAST: Good evening. I am Jim Pendergast, the remedial project manager for the South

MR. PENDERGAST: Good evening. I am Jim

Pendergast, the remedial project manager for the South

Cavalcade site. As Larry said, I am here tonight to

discuss the findings of our studies, what we propose to do

to clean the health-threatening contamination out of the

site.

Once again, most of what I am going to discuss tonight is already presented in that little six-page pamphlet that we have out here at the front desk that either you picked up tonight or we mailed to you, if you are on our mailing list. If you haven't picked one up, please pick one up on the way out. It really is a good summarization.

Again, we are going to have a short presentation of what we have found and what we propose to do, after which we will answer questions; or, if you wish, you can mail your questions or comments to us at the address stated in that pamphlet, and we will answer them in our record of decision.

I first want to briefly touch upon the history of the site. The site that we call South Cavalcade is

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actually located between Cavalcade and Collingsworth

Streets, about two blocks east of here. The slide shows
what it looks like today. The site has three trucking
firms on it. The rest of it is not presently used.

Now, between 1911 and 1961, it was the location of a wood preserving facility which used creosore this metal salts. There was also a coal tar distillation plant on the site.

Now, in a wood preserving facility, certain chemicals are introduced into wood to help keep the wood from decaying when it is out. One of these chemicals is called creosote. Creosote is found in certain woods, such as telephone poles or railroad ties.

Another salt or treating compound that is used is called Wolmanizing process, where metal salts are introduced into wood. And if you have done any work out in your yards with wood, that is the type of wood we are talking about.

Now, creosote consists of several compounds, most of which are called polynuclear aromatic hydrocarbons, which is a tongue-twister and we call PAHs, for short.

PAHs are natural compounds. They are found in cooked meats, wood smoke, asphilt roads. The metal salts used at the site include arsenic, copper, chromium, and zinc.

Now, we started our remedial investigation in

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1984 when the Texas Department of Water Resources referred the site to EPA. We actually started the field work in 1985 by having the Koppers Company, under an administrative order of consent, do the remedial investigation and feasibility study.

The remedial investigation is a study of the site where we take a look at all the possible areas where you could find contamination, which includes air, soils, subsurface soils, groundwater, drainage sediments, and surface water.

We took a look in our remedial investigation of things called site history, waste sources, and waste migration. The site history was very simple; we knew there was a wood preserving plant here. We knew what to look for.

Then we went to look for waste sources. What we found is we found creosote and metal contamination in soils in a couple places on the site. One of the areas, located in the southern part of the site, in the southeast corner, represented the old coal tar distillation plant. A coal tar distillation plant is the actual factory, so to speak, that makes creosote out of petroleum byproducts.

We also found some contamination in the southwest corner, which relates to the old operations area of the wood treating facility. And we found some evidence

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of contamination on the northern part of the site; we don't know exactly how it got there, but it appears to be of the same type of contaminants we found elsewhere, so we believe it was related in some way to the wood preserving or coal tar operations.

Now, most of these areas right now are presently underneath a couple feet of soil, or some concrete, or the trucking firms. There are a few areas, though, in which there is open soil above these areas, and if someone could dig down into it, they could come into contact.

We also looked at how these contaminants could migrate, and doing that, we took a look deeper down into the soil to groundwater. Groundwater is the water that you find underground. In this part of Houston, if you dig down about six to ten feet, you will strike water. This water goes down to great depths.

We found evidences of creosote-type contamination in the groundwater going down to roughly about 60 feet at the maximum. And what we found is that those areas of soils have allowed the contamination to spread out more towards the west.

What is shown on here is the maximum extent of where we found the technical site-related contaminants, not necessarily health-threatening, but where we can start to see something. The contamination right now is still moving

to the west, and, more importantly for the Houston area, it is also moving apparently downward.

Now, our concern with the contamination, of course, is the possible threat to human health. The contaminants at the site are known to cause cancer in laboratory animals, and because of that, our agency believes that it could also cause cancer in humans. There is also a potential for the contaminants to cause organ damage in animals, and associatedly, we also feel that it could be a threat to humans.

We therefore conducted an endangerment assessment, which we sometimes call a tisk assessment. And what this really means is we look at these contaminants, and we look at the ways in which they could come into a person's body and it could possibly cause some harm.

Now, in general, there are about three ways that anything can come into someone's body. You can -- it can come through the air, the water, or soil. You can breathe it, you can drink it, or if you get dirt on top of food or a child puts a dirty toy in their mouth, that is how he can eat it.

We did not find any health-threatening contamination in the air. In fact, we did not find any increase in contaminants from the site in the air. We did, of course, find some of the contaminants that you find all

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across Houston as part of the problems with the air.

We found no site contaminants in the aquifer, the groundwater, down at the levels where companies start to use that water for their business. And we didn't expect to find any down that deep -- that is about 200 feet deep -- because the compounds that we are talking about from the site take a long time to move. And so we didn't find any there.

We did find contamination in soils, most of which, like I said, is underneath the concrete and the buildings. But some are in areas where the utility worker, for example, had to repair a water line, or a construction worker was going to work on a place that was being developed that could come into contact with.

And we also, in terms of looking at the aquifer and the groundwater, saw that since the contaminants are moving down further, that someday in the future, if left uncontrolled, there could actually be some migration of the contaminants down to that level.

And for this reason, we felt that there could be some possible health risks; although there are not -- we didn't see any now, there could be some in the future if the site was left unabated. And therefore, we decided that we needed to take some action at the site.

We looked at many options for reducing

contamination at the site, and what we call the feasibility study. And very succinctly, the feasibility study looks at many different ways of treating or containing contaminants, and from that we evaluate and try to find the one that provides the best advantages, and we select that one.

We developed seven alternatives for soils and four for groundwater. And in doing this, we compared it to what we call the no action alternative.

The no action alternative is something that is included in every single Superfund study. We sometimes call it the baseline study, what would happen if we did nothing. That is why we call it no action.

And a no action alternative essentially means that we wouldn't reduce the contamination; we would take some measures to keep people out of it, by maybe putting up a fence or putting a notice in a deed, and we would also monitor to make sure that it didn't get any worse.

anything in terms of protecting human health is that it allows natural soil bacteria to decay the organic contaminants in creosote. And the way that access would be presented is that the trucking firms on site already have ten-foot-high fences, which do a very effective job of keeping people from coming into those areas and going around where they shouldn't be.

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The first real soil action alternative we call stabilization and capping. What this means is we would add a chemical to the soil to bind up the organics and the metals to keep them from moving anywhere, so they couldn't get down into the groundwater.

And, of course, when you do something like that, you have to put a cap on top of the site. This shows a typical cap -- not necessarily the cap we would use at this site, because at this site, the best cap would be about a foot of reinforced concrete which extends the same type of cap provided by the parking lots and the buildings. We can put something like this over the soils in about a year.

The second soil action alternative is an offsite landfill. Essentially, what happens here is you excavate the contaminated soils into trucks and take them to an existing hazardous waste landfill located somewhere offsite.

Now, under the revised Superfund bill, we look at offsite landfill, but it is not necessarily the preferred one; in fact, Congress told us it is the least preferred one. It would take about three years to complete an action like this.

The third soil action alternative is called soil washing. In this alternative, we would again excavate the soils, take them to a unit located in the central part of

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the site, add water and a surfactant, which is similar to a detergent, and wash the contaminants off the soils, and take the clean soils, bring them back, and put them back in the excavation.

The water, of course, that was used with the surfactants to clean the soils would now be contaminated, and we would have to clean that in a wastewater treatment unit, which I will talk about a little bit later in the groundwater alternative.

The fourth soil action alternative is onsite incineration. Essentially, again, this means excavate, take it to the central part of the site, construct an incinerator, and burn the soils there to burn off the organics; then take the soils and, if they test clean by our standards there, bring them back, put them back into the excavation, and cover it over. This action would take about four years.

The fifth soil alternative is a little bit more complicated. We call it in-place biodegradation. Now, in this alternative, we don't excavate the soils. Instead, we add the water and surfactants, like we did in soil washing, directly to the land, and allow the contaminants to leach out more quickly and go into the groundwater.

Now, we only can do something like this if we have a groundwater collection and treatment system to run

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also in place. You can't do this by itself, because obviously it just makes the problem worse. We can do this one in about five to ten years, depending upon how fast the water can go through and how well the surfactants can work.

I had the slides mixed up. The previous one was in-place soil flushing; this is in-situ biodegradation.

In-situ means in place. And this is similar to the soil flushing, the in-situ soil flushing, only instead of just adding surfactants, you also add nutrients to allow the natural soil bacteria to also degrade the contaminants.

This type of action can take place, but again, it takes place slowly because the bacteria need time to become adjusted to the contaminants and to work. And, again, it would take about five to ten years.

The seventh and last action alternative is offsite soil incineration. This is very similar to the onsite incineration, with the only difference being that instead of incinerating or burning the soils on site, we take the soils to an existing hazardous waste incinerator -- the nearest of which, I believe, is in Deer Park -- and we incinerate them there.

That action would take about six years,
primarily because it takes a little bit longer to fill up
the containers. They are smaller containers that the
incinerator requires.

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Now we move into the realm of groundwater treatment. The first alternative we looked at is in-place biological treatment, or sometimes called in-situ biodegradation or bioreclamation. This is very similar to the alternative I previously discussed about for the soils, but in here we are looking at deeper down in the aguifer.

Again, water would be pumped from the aquifer, brought on surface, and any visible creosote -- and creosote is tarry substance -- that type of substance would be removed above the ground.

The water then would have nutrients and oxygen added to it, pumped back down in the aquifer to provide the oxygen and nutrients necessary for the bacteria to degrade the nutrients -- I am sorry, to degrade the contaminants in the ground.

And this would occur in a cyclical process, that as you pull water out, treat it a little bit, add nutrients, oxygen, put it back in, and it cycles around until you clean the contaminants in the aquifer.

This will take a very long time to do, because water moves very slowly in Houston. We believe that this would take somewhere in the order of about 30 years.

The next groundwater alternative is similar to the in-situ biodegradation, but in here all the treatment will happen above ground. Once again, we would pump the

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water out, separate out the creosote, but then also do a better job in cleaning the water.

We could run it through an activated carbon filter, which is alternative two; a carbon filter, and air stripper, which is alternative three; or an activated sludge, which is a biological treatment unit to degrade the contaminants in alternative four.

The water from here, to the extent possible, would be added back into the aquifer to help push the contaminated water towards the collection wells, or if there is any excess water, it could be discharged offsite. And once again, because of the characteristics of groundwater in Houston, this could take about 30 years to do.

Now, under the recent revisions to the Superfund law, we have nine factors that we look at when we try to select a remedy. I am just going to briefly run through these, and then come back and visit these again and describe how they relate to our selected remedy, or our proposed remedy.

The first thing is compliance with laws, and, of course, that is very self-evident. We have to follow the laws.

We have to reduce toxicity, volume, and mobility of contaminants -- make the problem better, in other --

reduce the problem, in other words.

We have to have short-term effectiveness. We have got to implement this, or do this, as fast as we can, if we can do it. And in the process of doing it, we can't cause things to become worse; that is, you can clean up a site, but if you are going to, for example, add contaminants into the air, that could cause a short-term problem if people live nearby, and we have got to do something to prevent that.

We have to be effective over the long-term; that is, we can't do something and have it come back and cause a problem years from now.

We have to address the question of implementability; in other words, will it work.

We have to look at cost, which includes the cost of replacing elements if they fail.

We have to assess the community acceptance, and that is one of the reasons why we are here tonight, to provide you information so that you can provide us with some of the input that you may want to give us. We also have an administrative record that provides all the information that we based our analysis on, and we encourage you to look at the administrative record and then tell us what you think.

We have to have state acceptance; that is, we

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have to talk with the Texas Water Commission, the appropriate state authority in this case, and see what they think. And it is very important, because if we cannot get a potentially responsible party to do the cleanup, then we may have to do it out of EPA monies, and the state picks up about 10 percent of that. So it is very important to them.

And most importantly, we have to also protect human health and the environment.

Now, from our analyses, EPA believes that soil washing -- that is, excavate and wash the soils in the area around Palletized Trucking, which is on the southeast corner of the site -- I got those mixed up again. Can we go back?

I am sorry. And this is in-situ soil Yes. flushing for the areas in the no-thern part of the site and the southwest corner, soil washing for the southeast corner, and groundwater treatment for the entire site using activated carbon best meets the nine criteria that we have to look at.

Now, however, we have had one potentially responsible party suggest that we take a look at the insitu biological degradation in the groundwater, and if that company proposes the cleanup, and can show how this can work, and can show that it is just as effective as the one that EPA believes, we will also consider this.

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Let me go back and revisit these nine points and tell you why we believe that this is the way to go. First of all, all the alternatives -- that is, soil flushing, soil washing, groundwater treatment, and also the in-situ groundwater degradation, can be designed to meet all the present environmental laws.

All the alternatives will reduce the toxicity of wastes below levels that would threaten human health. The volume and mobility would also be reduced. Some of these are very effective on the short-term; soil washing can be completed rather expeditiously, about three to fcur years -- not as much as the one I talked about during the major part of this discussion, because we would only be doing this in part of the site.

And during this period, ensite workers could be exposed to some atmospheric emissions, if something like that would happen, but we could control this by putting a dome over the excavation, if necessary, and contain all the air within there so it wouldn't get out.

In-situ soil flushing wouldn't have a problem like that, because it happens in place. We are not digging. But, on the down side, it takes a little while to implement that.

On the groundwater treatment, regardless of whatever you do with groundwater, it is going to take a

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long time to do. It doesn't require or doesn't present too many short-term risks, because you are not doing a lot of excavation. You are just putting wells in.

We have put a number of wells in the site already, and in the process of testing the air during that, we didn't find anything to cause us to have any alarm for our workers, and for people farther away, there wouldn't be any, either.

In terms of long-term effectiveness and permanence, the remedies we are talking about actually degrade the contaminants. In the process of doing that, the contaminants are not going to reform and present any problem.

We are not talking about taking it and putting it in a container someplace that could leak; we are talking about destruction of contaminants. And so we feel that they are effective over the long term.

In terms of implementability, we feel that soil washing and the groundwater recovery can be designed and operated using methods that are there today, and we know what we can do with it.

In-situ soil flushing would take a little bit of time to get it going and operated, but it has been used in other places. We know that it can be designed well, and we feel also that it can be used here.

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In-situ biological reclamation of groundwater also could work, but our only question with it is that it requires a good place to put nutrients back in the groundwater, and we are concerned about having to put that type of thing across a railroad track. And that is our question with that.

But like I said, again, if a PRP, a potentially responsible party, can work out a way to do that and show that it is just as effective, then that wouldn't be a problem.

In terms of costs, the in-situ soil flushing is the least cost, or the alternative with the least cost, for cleaning soils. Soil washing is the alternative with the least cost that requires excavation.

In terms of groundwater treatment, the alternative that we would propose is the second most expensive -- I am sorry, the second least expensive. The in-situ biodegradation would be the least.

Community acceptance -- again, that is what the comment period is about. We want to hear your input, pro or con. We want to hear any concerns that you may have, if you work on the site, or you don't, or you live near the site -- we want to hear those concerns. We want to reflect those in the design. And we also ask that you read the information in the administrative record.

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State acceptance -- we have discussed this with the Texas Water Commission. We let them know what we They are reviewing this, and they will let us proposed. know whether they find any objections or not.

In terms of protection of human health and the environment, all the alternatives destroy health and environmental threatening contaminants to a level where it is not going to present a problem -- that is, that the contaminants are not going to progress further down and get into anyone's drinking water supply, and that the soils are not going to continue to leach these contaminants, nor, if any worker would get into these contaminants, for utility practices, for construction practices, or the normal onsite activities, that the threat to their health would be small, somewhere in terms of -- for example, cancer, one chance out of 100,000. That is compared to the one chance in three that we all have living in the United States today.

Now, EPA is going to continue to review the information in the administrative record, including all public comments, and from that we will decide the best means for cleaning the health-threatening contamination.

Now, this decision will be described in a document called the record of decision. We expect to make that decision and issue it in the latter part of September. Following the decision, as Larry said before, we will

design the remedy and test parts to find the optimal way to run treatment units.

Design and testing takes about a year. We may have to do a little bit of site work out there, in terms of sampling, to better refine the areas that might need remediation, or to set up a little pilot system to find the right way to run a treatment system. You can design it on paper, but you really don't get it working the best until you get it up and you start playing with it.

After that, remediation will start in earnest, and will run until the contaminants are reduced below the levels that we consider to be threatening to human health.

And who will do this work? It will either be EPA or it will be one of the potentially responsible parties. We don't know yet. After we have the record of decision, we give the potentially responsible parties the option. We ask them if they will clean up the site, because Congress requires us to do so.

In closing, we thank you all for coming tonight.

We are in the middle of the public comment period, and it runs through September 19. Please express your comments tonight, or, if you want, express them in writing to us. Send them to the address that is in this pamphlet, and please let us know what you like or dislike about our selected remedy -- I am sorry, our proposed remedy, and any

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of the other alternatives that we talked about tonight. Thank you.

MR. WRIGHT: We have two people who have indicated on their registration cards that they would like to make a statement, and we will let them go first. And then following that, anybody else who cares to make a comment or ask a question can do so.

The first person who indicated they wished to present a statement is Mr. Lloyd Martin of Houston.

MR. MARTIN: Thank you, sir. I am Lloyd Martin. I have lived in Lyndale since 1949. I have a house back over here on Kelley Street, the 300 block. I worked at the Houston Creosoting Company for eleven years. Eleven years I have worked there, we had two people die working at that plant. One worker had a heart attack. The other fellow choked to death on some food.

We had no -- I did all the -- I was in first aid, and the only treatment we had out there was mashed fingers, mashed toes, or getting hit by a cable, or something of that type. We didn't have any deaths or no sicknesses from the creosote.

I suppose most of you know more about creosote than I do. Creosote is a product from coal. I call it -- it is the old, old oil. In other words, oil comes from coal -- oil is a young coal, rather. I will get it

straight in a minute.

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But there is over 350 different chemicals in creosote. Where they get it, they take coal tar -- I mean coal, put it in an oven and cook it, and the fumes, they shoot that with steam and they get creosote. It is not an oil product.

It comes out of -- creosote, until World War II, the American creosote wasn't good enough, didn't have enough carbon in it, to use in treating of lumber. They imported it from Germany and England.

So, you see, and we have medicine. There is a lot of medicine we have that comes out of the chemical products that eventually or have been in the creosote line. I have helped and furnished a lot of information to different people on this project -- not this particular one, but, like I say, I was in the thing here in Houston for -- trying to help them find out just how to do this thing.

And any other thing I can do to help them, I am all for it. Thank you.

MR. WRIGHT: Thank you. The second person who indicated they would like to make a statement is Juanita Mitchell, first vice president of the Metropolitan Organization.

MS. MITCHELL: Mr. Pendergast, I was very

pleased to hear you say that the rates -- the possibility of cancer here is one out of 100,000 as compared to one out of three for the population as a whole. I wondered if you were going to get through your statement without saying that what we are talking about are life-threatening situations here.

Cavalcade site. We are very much concerned about the creosote and the metals. We know that they may very well be cancer-causing. We want your alternative to limit the risk to the community, to keep the risk of illness and death to a minimum to the community. That, sir, we hope, is your prime concern, not necessarily the cost or the time involved, but the loss in human life.

We wint the Cavalcade area to post signs on the Cavalcade site. We want signs posted there indicating the toxic wastes which may be present, and we want your prime concern to be the possible loss of life in that area.

Once cleanup begins, we want a minimum of exposure to the community. We want the least risk with long-term safety to the community. We would like to be apprised, sir, of your final decision prior to that decision being made.

We do hope that you understand, and that you know, that we are very much concerned about the health of

the community. That is my statement.

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MR. WRIGHT: Okay. At this point, we will go ahead and open the meeting up to anybody else who has any comments or has any questions. We just ask that you identify yourself.

These folks have used the microphone. That is up to you, but if you choose to make a statement where you are standing, we just request that you speak loudly enough so that our court reporter can hear and record your questions and comments.

MR. GARZA: My name is Andy Garza. I am with labor Local 18. We were a part of the committee from the Houston Gulf Coast Building Trades Council. We would like to address this issue.

As far as the burning on site, we feel that the area is very well populated to have an onsite incinerator there. It would further damage the air quality around our neighborhoods. A few years ago, we had an incinerator up here on 610 and 59, and we couldn't even sleep at night with the odor that the incinerator was having out there.

There were some local unions in the area, some with memberships of over 1,000 members. These people congregate monthly at their meeting locations, and it would further increase the hazard to those people who are meeting at those places.

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Again, I want to remind EPA that this is next to the Highway 59, where is a high density of traffic going on out there. We would really be opposed to any burning on site, or any washing on site. We feel that if you are going to wash the soil, there is only so much you can wash out of the soil.

We feel that in order to do a better job for the residents of Houston, is that all the soil be taken out completely, burned in a different place, and be replaced with good soil.

MR. WRIGHT: Thank you for your comment.

MR. PENDERGAST: I think it is prudent at this time to explain a little bit. First of all, we are not talking about an onsite incinerator at all. That is not the proposed remedy.

Secondly, in terms of removing contaminants from the soil versus soil washing, there are not going to be any air emission; from that type of operation. If, in the process of testing it, we found that there could be a potential, there is a way of collecting those and preventing them from getting out.

But from the type of contaminants that we are talking about, metallic or the PAHs, which we call heavy compounds, they do not get into the air very easily. And for that reason, we don't think that there is not going to

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be a potential for the contaminants getting out.

In terms of presenting some information in previous speakers, one of the things we looked at at the site was the potential threat to human health today; that is, what would happen if someone climbed over the fence and walked around there? Would they get into any of the contaminants?

And the answer is literally no. Most of these contaminants are underground. We don't expect, for example, that children would hop the fence, run around there, and spend a couple of days digging around in the soils.

The risks that we look at to human health are based upon lifetimes of exposure. And associated with that, we do not think that people who cross those fences there -- and they are ten-foot fences with barbed wire on top -- are going to get out there and spend 70 years out in that area. It is not a residential neighborhood right now.

We do look at minimizing exposure and minimizing risk. That is what the goal of the program is. And in doing that, we are talking about, one, and most importantly, keeping the contaminants from migrating into a water supply -- that is so it will not get to a point where it could possibly get into people.

Number two, in terms of soils, treating soils so

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that the incremental risk -- that means, on top of anything else, for a person who lives out there for his lifetime or works out there for his entire career -- would be in the order of one in 100,000. And that is what we talk about, small incremental risk.

We don't say zero, because our scientists have told us that we can't calculate a zero risk for cancer. We have to talk about probability -- one in a thousand, one in a million, one in a billion. It goes on and on and on, but we still always say, if there is one molecule out there, there is a potential. And that is why we say one in 100,000 is small.

In terms of signs out there, that is something that we can take into consideration. Certainly, during any type of remediation -- that is, the type of cleanup activities we do -- we want to make sure that the community knows. We want to make sure that people know, so they don't go out there and try to get into the area.

We know that putting out a sign sometimes saying toxic waste is a sure magnet for drawing people. But we want to make sure that we keep people informed, and we will keep that under advice.

In terms of the looking at cost or time as measures for cleaning up, we have to look at them, but they are not the overriding ones. We have to look at all nine

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human	health	and	the	environmen	ıt,	and	1 that	is	what	we	do.

If we had two alternatives that are equally as protective, that is when we talk about cost, because we don't want to throw dollars if it doesn't do anything. If it does do something -- that is, it provides better treatment -- well, that is a different story. Cost comes in when you have things that are equally as effective. That is when cost comes into play.

MR. WRIGHT: Any other questions or comments? MR. MARTIN: This branch of EPA, does it deal with the existing operating plants, or just abandoned plants?

MR. WRIGHT: We deal with the Superfund program, which is essentially inactive facilities. There is another branch within our division that deals with active operating facilities.

The State of Texas also deals with active operating facilities through a program that is authorized by EPA. But the program we are in is primarily looking at those inactive or abandoned sites.

MR. MARTIN: Okay. Thank you. I have got a question. There was a creosoting company on Oliver Street. SP Railroad had a plant on Wallaceville Road -- Old Liberty Road, it was. And General American Tank Farm used to store

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their creosote at Galena Park down there in huge tanks they take off of barges and off of ships.

And I wondered if they have done anything to clean those up.

MR. PENDERGAST: Not that I know of, but what we do in Superfund is, there are somewhere -- probably close to 30,000 hazardous waste sites across the country. Right now, we have got a little bit more than a thousand in Superfund that we look at. We are in the process of continuing to look at more and more sites as time goes on.

In terms of those sites that you talked about, one agency that helps us a lot in finding new sites is the Texas Water Commission. Mr. Joe Brown in the audience there represents the Water Commission. He is willing to talk to you, I believe, and he has got his card for you, in terms of -- you can talk to him to help discuss those sites.

MR. MARTIN: Okay. Then there is another site that is up here on Irvington. It was the Hathaway Patterson Crossarm Company. And I think you have -- are in the process of using bacteria up there on that site.

I am wondering how it is working out, and -wait a minute. That is still an operating plant, so it
would be out of your division, so that is why you wouldn't
know. But I do know that they are using bacteria on that

site.	It	is	pentachlorophenol,	principally,	but	they	do
have	creos	sote	up there.				

Then again, there used to -- a plant moved from over here on Collingsworth down here. They bought the old Texas Creosoting Company. That is the 7200 block of Hardy Street.

MR. PENDERGAST: That is Crosstimbers and Hardy?

MR. MARTIN: Crosstimbers and Hardy. Most of

You know now that that plant is not there any more, but it

was operating until they bought -- they started the Hardy

Toll Road. What did they do with the contaminants in this

site?

MR. PENDERGAST: One of our arms in the Superfund program is a group that looks at sites before they get proposed for Superfund work, and that group right now is looking at the information from that site, and from that, they will present the information so that we can decide later whether it has enough to be a Superfund site or it doesn't. But we are still looking at that now.

MR. MARTIN: Well, I know that when they worked on that plant up there, they took people that had white uniforms on -- the bulldozer operators and everybody had to have a sealed unit.

They took a lot of that contaminants up there and put it under -- they took a big piece of plastic and

put it under those overpasses up there on part of the Hardy Street Toll Road. So that is where part of your creosote from the Texas Creosoting Company is now.

And if you will check that out, I think you will find that my information is correct. Why can't we do some of this over here? Is it too deep, or couldn't we bury it under a big, thick piece of plastic under all this traffic and freeways and stuff we are building around this beltway? It wouldn't be that far to haul it, and you wouldn't have to burn it or wash it, either.

MR. PENDERGAST: That is interesting.

MR. WILLIS: I have a question. My name is A.

W. Willis. How many of these hearings have there been, and
how many will there be, before you decide which alternate
will be used to do something with the site?

MR. WRIGHT: For this particular site, this is the public meeting that we are using to seek comments from the public about the alternatives. There will not be snother public meeting of this sort prior to the time we make a decision.

Generally, the way the process works is that when we get down to the point where we have completed the investigation, we have completed the feasibility study, then we put together a fact sheet on the site; we distribute the information from the reports to all the

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different public repositories; we announce a public meeting, for example, that we are having right now; we announce a public comment period.

Then we get the comments during that time, and evaluate them and make a decision. So there will be no other public meetings that will be held prior to the time we actually make a decision on the site.

Now, the public comment period will continue through September 19. The public comment period runs for approximately a month, with a meeting somewhere in the middle of that time frame, roughly.

MR. WILLIS: We have heard the alternates that EPA is considering are 7, 4, 10, it states on the sheet here. Are we talking about one of those alternatives, or a combination, or --

MR. PENDERGAST: We are talking about a combination. Alternatives 4 and 7 deal only with soils, and alternative 10 deals only with groundwater.

Alternative 4 and 10, the soils and groundwater, work well together hand in hand. But we have a problem with using alternative 4 everywhere in the site.

Remember back to that slide I had, where we had about three areas of contamination, one in the southeast corner, one in the southwest corner, and one in the northern area. Soil flushing, which is alternative

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number 7 -- okay, I am sorry, 7 -- works well in the northern part of the site and the southwestern part of the site.

But on the southeastern part of the site, we have another problem, and that is, right underneath the soils there, there is some creosote, a pocket of creosote.

And it is right on the border of the site.

We are worried that doing something that is in situ, alternative number 7, which adds more water, will push some of that creosote to the east underneath the railroad tracks -- that is, making the problem worse. And we don't think that is the right way to go.

So in that area, we don't think that an in situ process can work, because it will push contaminants off the site. So that is why we had to go to another alternative, 4 there.

Things like this sometimes happen, where you have contaminants in one area where there is a great way of cleaning, but there is a certain factor in another area that prevents it. And we have to more or less split up the site into those areas and look at the best in each of those areas. And that is why we are talking about a combination.

MR. WILLIS: Would this be a project -- once the decision is made, would this be a project you bid out to a contractor to come in and work on?

	MR. WRIGHT:	Yes. It	will be o	eventually,
there will	be construct	ion taking	place on the	he site, and it
would be do	one by some co	ontractor.	As we tall	ked about
earlier, we	e are not sur	e exactly	who is going	to do that.

The Superfund law requires us to go to potentially responsible parties to see if they will do the cleanup before we take the money out of this Superfund to do the work.

MR. MARTIN: Well, now, who is that?

MR. WRIGHT: Okay. We have to go to potentially responsible parties. That would include current and former owners and operators of the site. If we can reach agreement with them to do the work that we say needs to be done in the record of decision, then we would sign a consent decree.

It would be the party's responsibility to pay for the cleanup, to hire a contractor, and to manage that contractor. It is EPA and the state's responsibility to oversee the work that is being done to make sure that it is done properly, meets the requirements of the record of decision, and is in accordance with the consent decree.

Okay. So that is the first thing.

If for some reason we were unable to reach agreement with potentially responsible parties, and as I indicated earlier, we would have two options. One would be

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to take money from the Superfund. EPA, or the state,	using
Superfund money, would hire a contractor. And that	
t constactor. And that	
contractor then would do the work directly for EPA or	the
state. Then we would be letting the contracts, and all	1
that sort of thing.	

Once that work was done, then, we would go back to bring suit against the potentially responsible parties to recover that money to put back into the Superfund.

The third alternative is the possibility of litigation or enforcement action against potentially responsible parties. We would have to make that decision after we talked to the parties about whether or not they were willing to do the work.

So eventually there will be contractors doing the work, but I can't tell you right now whether it would be a contractor hired by the potentially responsible parties or a contractor hired by EPA or the state.

MR. WILLIS: Are those parties still responsible if they no longer own the property?

MR. WRIGHT: Correct, yes. Under the Superfund law, both current and former owners and operators are considered to be potentially responsible. In this particular case, as I indicated earlier, Koppers Company was identified as one of the potentially responsible parties, and they came forward, and under an administrative

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order on consent,	an agreement between EPA and Koppers,
Koppers conducted	and funded the remedial investigation and
feasibility study	that was done out there.

They hired their own contractor to do that work.

Our involvement was oversight of the work that was done.

MR. WILLIS: When do you anticipate to start work?

MR. WRIGHT: Well, the first thing that we will do, as Jim indicated, is to make a decision on the cleanup plan that we believe is best for the site. We expect to do that by the end of September.

We will go to the potentially responsible parties with that plan and ask them to implement that action under terms of a consent decree. The law provides for a 120-day negotiation period to finalize a consent decree, if they are willing to conduct the work. So there is an additional four months, which puts us to the end of January.

Assuming we can reach agreement on the potentially responsible parties conducting the work, then there would be the remedial design. That is where we actually do the engineering plans and specifications. That is going to take a minimum, probably, of eight to ten months, I would think.

So we are probably not talking about any actual

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cleanup work starting on site with a contractor for	a year
to a year and three months, somewhere in that neighbo	orhood
probably.	

MR. MARTIN: Is any of the buildings going to be torn down over there? Are you going to tear any of that concrete up over there?

MR. PENDERGAST: Okay. First of all, what the map showed --

MR. WRIGHT: Did everybody hear that question?

MR. PENDERGAST: Okay. The question was, are we talking about tearing up concrete, buildings, or streets to go after the contaminants. We are not talking about doing that. What the map showed was the outer limit of where we think contamination is. We know that outside there, there isn't any; within there, there could be.

What we found is the areas that present the health threat are constrained within the site -- that is, within the boundaries of the site, Collingsworth on the south, the railroads on the east and west, and Cavalcade on the north.

We are not talking about tearing down any of the buildings or up any of the concrete there on the site, because we can get at the groundwater without doing that. So there is no need to put anyone out of business, if we can clean it up otherwise.

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The second thing is in terms of contact of the soils. Obviously, people aren't going to get into the soils if they are underneath a building. And for that reason, we are not talking about doing that.

MR. HIGGS: I am Joe Higgs with TMO. I guess the question I have, though, is if there are contaminants, creosote, underneath the concrete or underneath any areas of the building, wouldn't they continue to contaminate groundwater over the years, so that 30 years from now we would have the same problem of contaminated groundwater?

MR. PENDERGAST: That is a good question that we have been wrestling with for a while. The way that the contaminants continue to migrate is when rainwater hits the soil, percolates on through, and leaches out the contaminants to allow them to go further.

With the concrete from the trucking firms and the buildings there, that presents an effective barrier for any water to come through. There isn't any water coming through the building and going down through the soils.

What we will do is after we get the contaminants out of the aquifer, is, as we are required to do, continue to monitor to assure that we are right. If we are not, then we have to reopen the site and talk about tearing down buildings and concrete then.

But without having the ability to determine that

now, we do not think that it is prudent to tear down	48
buildings and concrete to clean up something which may	not
present a problem for continued migration today	

MR. HIGGS: How long will you continue to monitor to see if you are right or not?

MR. PENDERGAST: It will be at least five years. As to how much longer than that, I can't really tell until we get out there and run some leachate tests on the soils. That is something we will be doing during part of the remedial design, which will be in the first -- sorry, within a year from now.

MR. WRIGHT: But I think, to answer that question, we will continue to monitor all the time that the groundwater cleanup is continuing. We are saying here that it could take up to 30 years for that to occur, so there will be continued monitoring on the effectiveness for at least a minimum of 30 years. And if it is necessary, it will continue after that.

Now, there is also a requirement under the Superfund law that we reevaluate the effectiveness of any remedy where any contamination is left on the site every five years.

So there are two things that will happen. One is that there will be continued monitoring for a minimum of 30 years, and, if necessary, beyond that; secondly, on a

five-year basis, every five years, we will be evaluating,
formally evaluating, the data and the information that is
continued to be gathered from the monitoring, and
reassessing the effectiveness of the work that is done.

MR. HIGGS: Do you have any assessment as to how much of the contaminated soil is actually under concrete?

MR. PENDERGAST: Roughly about half of it.

MR. HIGGS: So that helf of the site you are really not going to do anything on at this point?

MR. PENDERGAST: No. The site is about 64, 65 acres. There are about six acres of contaminated soil we are talking about, going after the three acres that are not presently under buildings or the concrete necessary for the trucking.

MR. HIGGS: Is it basically the cost of tearing down the buildings and the concrete, or is it a concern for destruction of the business, or what is your rationale on that?

MR. PENDERGAST: First of all, it is concern for the disruption of the business. Secondly, it is the need to do so -- that is, there is no way that we can determine whether those contaminants are leaching today. And the only way to determine that is to tear up the businesses.

That doesn't seem to be a wise decision right now, because we don't have the data to justify it. After

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we do some cleaning up of the aquifer, we will be able to determine it, and at that time be able to make that decision.

MR. HIGGS: How soon after you clean up the aquifer and, you know, you do your initial cleaning of the first three acres will you be able to tell if you need to go back in?

MR. PENDERGAST: We can't determine that right now. One of the things, when we are talking about cleaning up the aquifer and we said about 30 years, it is because the water moves slowly.

We have to -- the only way we can start projecting a good number from there is, once we have the groundwater unit in place and operating and see how well it moves and how well it works -- once we have that information, then we can project that time for you. But right now, I really couldn't say with any accuracy.

MR. WRIGHT: One of the things we would be looking at in that review would be based on the number of wells we have in collecting the water, the numbers of wells we have in where we are putting the treated water back in.

We should be able to make some decent estimates of the time of travel; make some estimates of how long it might take contaminants to move across the site; take a look at the trends, in terms of the levels of contaminants

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we are seeing.

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At this point, it is hard to predict exactly when we could say definitely yes or no. But we will continue to do those sorts of analyses and continue to do that monitoring, and if at some point in time it appears that the only way we can ever address fully the site, and it is necessary to go in and do something underneath those buildings, you know, we will have to make that decision at that time.

MR. HIGGS: Okay. Just to get an idea, do you think you are talking more like two years or 20 years, where you could get an idea?

MR. WRIGHT: Certainly not two. Probably closer to something like ten.

MR. HIGGS: And how long -- you know, if we give you our registration card tonight, how long will you continue to advise people about it, so that -- you know, ten years from now, maybe, when we are all -- we have forgotten about this, who is to know that the EPA is going to continue to do what is in the best interests of the community, rather than decide well, we really don't want to disrupt those businesses?

MR. WRIGHT: Well, if we -- that is one of the things that the Superfund law mandates us to do, is to take a look at that. And we will continue to have people in our

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office assigned to reviewing and monitoring that.

If we have a consent decree that has been signed by the PRPs, there will be a continuing requirement for monitoring. If the work is done by us or the state, there will be a continued requirement for monitoring.

Also, the law requires us to do this evaluation every five years. So it is not something that is going to be, you know, just once the cleanup is done, it will just be shoved aside and forgotten; there will be a continuing process of evaluation.

Now, if we get to the point where we determine that it is appropriate to take additional action, then we would be going out with a study and coming to a public meeting such as we are talking about now to receive input again on the appropriate measures to take to address any contamination that is left under the buildings.

MR. PENDERGAST: The other thing that we do is that when we get to the point where we think that everything has been done, we have a formal procedure we call delisting the site, and we also have public comment and public notice of that.

So everywhere along the way, from this point going all the way through the time in which we think everything has been done, we have a community relations person assigned; we have fact sheets; we have meetings,

where necessary.

MR. HIGGS: Will they be in contact with all the persons who fill out registrations throughout this whole process, or -- so for ten years from now, we will be continuing to be informed about it?

MR. GREENEY: Unless the post office sends it back and says we can't find you.

MR. PENDERGAST: Okay. That is if any of you want -- you know, if you do want to keep informed and you happen to move, please send us the letter to tell us your new address, because sometimes people move and then after a year the post office refuses to forward the letters any more, and things get lost.

So we want to keep informed if you move; please let us know.

MR. WILLIS: I have a question. Tenants that are on site -- there are tenants on site there. What if they decide to do some excavating on the site, concrete or maybe adding on to a slab, or add on to their building?

MR. PENDERGAST: Okay. First of all, it is very hard for us to tell people what they can or cannot do with their property. We have made all the site owners known of what is there and what possible threats could happen if they, for example, did down into contaminated soils before we talk about cleaning them up.

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What we do with them is we have an open dialogue. For example, one company asked about extending their concreted area. They called us up to ask, is this area okay. And we looked at our map and looked at our data and told them, in this case, yes, it was.

And then a second company said, well, how about this area, and we said, no. We are talking about taking action out there; if you put something out there now, we are going to have to tear it up, and it is just going to be your wasted money.

So in terms of what they do -- of course, they don't want to do anything that is going to bring people harm, and they work with us and we work with them in letting them know.

MR. WRIGHT: Another thing that is done over the long term is that there will be a requirement that the deeds carry information about the site, so that over the long term, many, many years down the line, if for some reason one of the companies decided they wanted to pull their business out of there and sell the property, a new buyer or potential buyer would be aware that that was a Superfund site, that there were actions taken there, that there may be, at that point, still some ongoing remedial action or whatever.

So that would be another restriction that would

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be placed on the deed records, at least, notification, deed notification of activities.

MR. PENDERGAST: And then a third thing is that the law allows us that if someone tries to sell their property and not tell the person they sold it to about the problems, and if that second owner then goes and does something to make the problem worse, unknowingly in this case, that EPA has the authority to go to that person, the seller, and say, through your actions, you have caused the problem to be worse; we are now taking action against you.

So there are some safeguards along the way to keep someone from trying to hide the contamination by selling it to somebody else.

MR. WILLIS: The concrete pavement that we are talking about, has there been any idea of doing drill testing on some of that area to see whether or not the contamination is in the groundwater?

MR. PENDERGAST: Yes, sir. We did drill through the concrete in some areas, out of the path of the trucking -- I mean, obviously we couldn't do it in the road where they are coming back and forth. And that is how we were able to develop that maximum extent of groundwater contamination map that I showed up there.

We did drill some holes through concrete to do that. So that is how we determined that.

		MR.	WRIGHT:	I	am	sorry.	. 1	This	gentleman	here
raised l	his	hand	l, right	ove	r h	nere.	Go	ahea	ıd.	

MR. LIMA: Yes. My name is Claudio Lima, and my question is, have you already approached the present owners of the area with this proposal? And if you have, what kind of feedback have you gotten from them, as far as cooperation with cleaning up the area?

MR. WRIGHT: Do you know if you were able -- did you get this gentleman's name? Could you repeat your name, please? I am sorry.

MR. LIMA: Yes. Claudio Lima.

MR. PENDERGAST: Okay. First of all, we did talk to all the owners of the trucking firms today, and we had an abbreviated version of this, mainly because we were able to talk to them one to one.

Two of them were more or less behind us, in terms of what we are talking about -- when I say more or less is they want to continue to talk to us during the installation to make sure there isn't any action that they might be contemplating at that time that might interfere.

Our assurances that we gave them is that we would be working with them; that if we were going to propose to do something in one area -- for example, build the groundwater treatment plant, which we could put almost anywhere -- and if they had targeted our first choice for

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something else, we could move it, then. We also talked about plans that they might have for development in the areas, and we suggested to them that they wait until we finished cleaning those areas.

A third owner suggested that we develop a way for handling the soils in a piecemeal approach so that he could continue to use that land, or most of the land around there, during our actions; and if we could do that, then he would feel inclined to go along with us.

However, there is nothing that says that the landowners have to agree with what we do. If we can get agreement, that is for the best, and we try to get that. But if a landowner, for example, tells us that no, we can't clean his land, and if it presents a continued threat to migration, well, then, we can take some enforcement action then.

MR. LIMA: My second question is, what can the community do in case we get a situation where the owners are not cooperating in the cleanup?

MR. PENDERGAST: I am not sure how we can answer that. I know how we do it; we go to court. I am not sure what a community could do to help support that.

MR. WRIGHT: I think there is a provision in Superfund whereby citizens can take action on their own, either -- of course, citizens can always take action on

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their own, through, you know, just bringing a private lawsuit against companies.

But I believe there is also a provision under Superfund whereby they can use some of the Superfund authorities to bolster their own arguments in court. I am not familiar enough with the specifics of that to say much more than that. We have people in our office who are attorneys, in our office of regional counsel, who could probably respond to that question right away; but unfortunately, I don't know enough about that to tell you much more than that.

MR. LIMA: My final question is, can you enforce any restrictions on the owners to keep them from removing some of the contaminated soil from the property before the cleanup is begun?

MR. PENDERGAST: Well, first of all, the owners aren't interested in doing that, the existing owners, mainly because they don't think that there is any liability for themselves right now. I mean, most of them -- for example, one of the trucking firms leases the land, doesn't own it, and another one has come on there, and the contamination that they would have to go after and dig up would require, in some cases, disrupting their own business. So we don't think that that is really a problem.

In terms of what would happen if someone

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actually tried to do that, there would be some grounds there for us to take some action against them.

MR. LIMA: Okay. Would you be in a position to actually take some concerted action if that actually occurred, where they actually did move it themselves?

MR. WRIGHT: Yes. There is a requirement on Superfund sites that when anybody takes any action like that, that there has to be some control over how the material is removed, how it is handled, where it can be taken for disposal, all those sorts of things.

So if we found that one of these companies was trying to do those sorts of things without -- and creating a hazard of some sort to public health or the environment, taking things to -- taking some of that material to an area where it was improperly disposed, those sorts of things would certainly be grounds for us to come to them and take some sort of enforcement action for that.

As Jim indicated, we don't think that is the case here, that anybody has any interest in really doing that.

MR. PENDERGAST: And it is mainly because the potential cost to a company in doing that is much greater than waiting for the actual cleanup to start and for it to be done, because if, for example, someone dug up the dirt and carried it someplace and dropped it, when we find

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dierupti	lons like	that when	n we are	out there	visiting	the
site	they are	going to	have to	come out	and clean	up
another	area.					

And the more that gets moved, the bigger the costs get, and if you can imagine that companies are in the business of making money, they are not going to take actions that are going to cost them much more money down the line.

MR. HUNTER: My name is Mark Hunter. I have a question about bioreclamation. What I would like to know is, can you accurately predict the progress of this process and what reassurance do you have that the process itself is not hazardous to the environment?

MR. PENDERGAST: Okay. The contaminants that we are talking about that are hazardous out here in the site are what we call higher order PAHs. As they get degraded by bacteria, they become lower and lower orders.

Essentially, it is an organic compound that looks like a bunch of hexagons that are put together. bacteria break the rings; as you get fewer and fewer rings, the compound becomes less and less toxic.

There are some PAHs, a good number of them, that do not present a hazard at the levels out there in the site. And that is what we expect that the bacteria would

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1	do, that it would break those rings and make them less
2	hazardous compounds.
3	MR. HUNTER: What about chlorinated
4	hydrocarbons?
5	Mk. PENDERGAST: We do not have chlorinated
6	hydrocarbons out here, sir. No pentachlorophenols.

Let me restate the question. Our court reporter didn't hear you. The first question was, what about chlorinated hydrocarbons? We don't have them here. The second question is, what about pentachlorophenol? We also do not have them out here on the site.

MR. WRIGHT: Other questions or comments? MR. DILUZIO: I just have a couple quick questions. My name is Dan DiLuzio. I am a resident of Houston. I am somewhat familiar with the Superfund program.

In background, I am curious to know what were the major exposure pathways that made this site be ranked? Was it just groundwater?

MR. DILUZIO: Okay. Now, did you all consider the geology of Houston, basically being illite and smectite clays, when you were considering the soil washing and also your groundwater pump and treat, and whether or not those things will swell and also cause a differential pressure to

MR. PENDERGAST: The major one was groundwater.

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MR. PENDERGAST: The first thing we did about soil washing is we had a treatability test where we had samples of the soils and tested them to make sure that it would work. We found that it worked very well.

The second, in terms of the groundwater pump and test, we had quite a bit of experience in the Houston area in this type of work, and we are building upon that. We have a site called North Cavalcade that is located across the road. We have had a pump test here at South Cavalcade. We have other sites that we have run around the Houston area where we have had this experience and that we have looked at.

MR. DILUZIO: Okay. And how have these responded -- first off, what current levels are exceeding MCLs? What contaminants?

MR. PENDERGAST: Okay.

MR. DILUZIO: Just benzene? I am not too familiar with the site. I am just coming in off the street.

MR. PENDERGAST: Okay. Metals, roughly by a factor of ten; benzene, which is an organic -- the number escapes me, but it is a factor of ten or higher.

MR. DILUZIO: Okay. And the metals are mainly found in the surface soils?

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MR. PENDERGAST: The metals are found primarily
in the aquifers. We have some question about that, in that
we don't know exactly how much of that is dissolved that is
available for drinking water. We use total metals, which
means that we may have also been sampling some soils in
that process.

MR. DILUZIO: Yes. I am familiar with pump and treat systems not being too effective with metals, because it leaves a lot of them in place. And I know we talked about PAHs a lot; we really didn't discuss the metals too much.

MR. PENDERGAST: Our big concern is PAHs, because, as I said, with the metals we are talking about a tenfold increase; with PAHs, we have free product out there. That is physical creosote. It is not dissolved with water.

And the concern with -- why we focus heavily on PAHs is that we need to have a thousand time reduction in PAHs, or more, to get down to levels that aren't going to migrate and aren't going to get into the water.

In the process of recovering that much of the PARs and treating it that much, we are going to be pulling out a lot of water. And we expect that we will be pulling out enough water to recover the metals.

MR. DILUZIO: Okay. So I am assuming that --

you said you had done some studies on the soils. Now, the PAHs are large ring compounds that aren't extremely mobile, and also will it turn the phase of the soil from water wet to oil wet, because these have a lot of oil compounds and therefore adhere to the soils?

MR. PENDERGAST: They do adhere to the soils.

One of the reasons why we have to add surfactants to the groundwater is to help mobilize the compounds.

The concern we have primarily with PAHs is that in the free phase they migrate through the slick and slick and slick, clay fractures that predominate this area.

Otherwise, the clay layers down there would prevent further migration downwards.

We expect that there will be some changes in the soil chemistry over time as we remove the PAHs. There might be some desorption. And these are things that we acknowledge and we have to look at as we are in the process of doing the recovery and the treatment that you can't effectively predict ahead of time.

MR. DILUZIO: One comment, and I have a few more questions. I am aware of EPA's work. I know Region VI, which is this Dallas office, has done extremely well in comparison to the rest of the country in their cleanups.

current risk level at the site? I know you looked at it as

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with no cleanup.

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MR. PENDERGAST: Okay. In terms of the current risk level, we are going to have to discern between soils and groundwater, because it is different groups that are affected by that.

In terms of soils, we believe it is somewhere in the order of 10-5, or one in 100,000; but then again, that is based upon the data that we had. We are going to get much better data, in terms of more refined -- that is, in the areas of contamination looked at, we might have eight samples; we are going to have to refine the sampling to find precisely those areas where we have a problem. And we might, in doing that, find higher contamination, therefore higher risk, in that area.

In terms of the groundwater, because of the slickenslides nature of creosote and the slick and slides, there is no effective way to monitor the migration downwards to a water supply. So we presume that everything that we have up here on the surface could someday, at the same concentration, get down to a lower area; in that case, the risk would be somewhere in the order of one in 100.

But, like I said, since we can't predict exactly how it gets there, that is an upper bound. We expect that it will be lower, but we just cannot calculate how much lower; so, as you know, with EPA, when we don't know, we

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MR. DILUZIO: In the meantime, while you are going to do some more studies on the site, do you intend to implement any kind of pump and treat system to stop that flow, or are you going to wait for the extra year for designs?

MR. PENDERGAST: Well, okay. First of all, the site has been out there since 1910 -- that is about 70 years -- and it has gone 60 feet down in 70 years. We don't think another year is going to make that much difference, in terms of controlling the site.

MR. WRIGHT: Plus there has to be some design, you know, for any system you put in. So we think it is prudent in this case to go ahead and do that design, you know, in concert with the rest of the design for the site, rather than go out and put a system in right away.

As Jim indicated, we don't think there is going to be that much of a detriment to waiting the time to do a complete design for the whole site, as opposed to going out and putting some wells in right away.

MR. PENDERGAST: If we did feel that way, we would have been out there putting in the wells in the beginning.

MR. DILUZIO: Okay. I know you have the authority to do it any time you want, any time you think

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there is a threat to human health and the environment.

Also, another question I had is, would you hold another public meeting in the event you switched your decision to go with the biodegradation that is recommended by Koppers?

MR. PENDERGAST: Well, we don't expect to, and that is one of the reasons why we are presenting this out front right now. We want to hear all the opinions, both pro and con, about these.

If we did have a material change in the remedy, something that we hadn't discussed, then we would come out for another public meeting. But for something that falls within the realm of what we discussed tonight, no.

MR. DILUZIO: Okay. Now, just being aware of how it works, I know that is -- how the Superfund program works, is it very likely this will occur, this biodegradation?

MR. PENDERGAST: We have to wait till we see the data on that; and we also have to have some assurances that you can put treated groundwater across a railroad track without having the Texas Railroad Commission or the railroad strenuously object, and that is something that we just don't know right now.

MR. DILUZIO: Okay. Another thing is, at what point do you tend to -- what, site boundary will be your

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MR. PENDERGAST: In terms of the point of compliance, well, first we are going to try to do the site boundaries for horizontal migration; that is, keep the contaminants from moving at health-threatening levels across the site.

In terms of going down deeper, we know where the maximum extent is right now, and we are going to try to clean up that entire aquifer to the health levels of MCLs as much as we can.

We expect that at some time we are going to find that you can't get anything more out of the aquifer; that for some reason, given the typical chemistry of the contaminants, they are not coming off the soils any more. It is going to hit an equilibrium.

We expect that that is going to occur in the aquifers that are already contaminated, and that we are not going to see any further migration downwards.

MR. WRIGHT: But additionally, we are sampling and monitoring the 200-foot aquifer --

MR. PENDERGAST: That is right. We are going to be monitoring the 200-foot aquifer and the 500-foot aquifer to make sure that we don't have any contamination going

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deeper. And if we do see something on there, then, of course, we have to reopen the process and look at that.

MR. DILUZIO: One last question. I don't mean to put you on the spot too much, but I am aware of Congress's current influences to -- when you come to a record of decision is that is your decision and not to do more studies; basically, when you come to a decision such as this, to go out and implement it, and not to go ahead and do more pilot studies in the field, and then say, a year from now, two years from now, that it is not feasible, and then you go ahead with some other, you know, that was mentioned in this public meeting today, without going back to a public hearing or some kind of forum like this.

I wanted to hear your comments on that.

MR. WRIGHT: Well, first of all, what we are asking here for tonight is comments on these proposed plans. I think what we are talking about in terms of some of these additional studies are really to refine design details. I don't think we are talking about going out with some plan that is entirely different than what we are discussing tonight.

I think what we are looking for is doing studies that will determine the most appropriate way of managing and implementing the remedies that we are talking about here, so we are looking at doing studies that are going to

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So, you know, I guess I don't agree with your analysis that we are going to be doing a bunch of additional studies that are going to have us come up with some different remedy, because that is not the intent.

MR. DILUZIO: I just want to say thank you for coming out here; I appreciate it, and letting us all know.

MR. WRIGHT: Other comments, questions?

MR. MARTIN: The Koppers Company had a plant up at Texarkana that you all did something to or are in the process of doing. I want to know what process you used up there, and how is it going?

MR. PENDERGAST: First of all, we are about one month -- the work on that site is about one month ahead of this; that is, we had this very same meeting there about a month ago, and we are in the process of putting together our decision on that. Hopefully, we will issue that about September 15, so we haven't taken any action out there.

What we are proposing doing is to excavate the soils and use soil washing, the same as what we are talking about down here, in one area. We are talking about extracting the groundwater, treating it with a separator and then with activated carbon, and putting it back in, the very same that we are talking about down here.

-1.	MR. MARTIN: II
2	site yet that you have use
3	really what you are doing.
4	MR. PENDERGAST:
5	process, the soil washing,
6	we, Region VI office, have
7	sites.
8	MR. MARTIN: Wh
9	MR. PENDERGAST:
10	in New Jersey.
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13	specifically from this site
14	that it will work. The sam
15	data from our site, using t
16	would work.
17	MR. MARTIN: The
18	than the dirt on Cavalcade.
19	MR. PENDERGAST:
20	MR. MARTIN: The
21	know just how deep it is, by
22	It is a white quicksand; in
23	broke building this underpas
24	He pumped for several weeks
5	quicksand pumped dry, but he

71 n other words, there hasn't been a ed this process on; you don't know Is that right?

No, sir. That is wrong. This has been used. It is just that not used it at one of these two

ere has it been used at? It has been used in Region II

New Jersey?

And we also have test data s, using these soils, to show ne with Texarkana, where we had chose soils, to show that it

dirt in Texarkana is different

That is --

dirt out here is -- I don't ut we have a quicksand out here. fact, there is a fellow went ss up here on North Loop there. up there trying to get that went broke doing that. So we

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MR. PENDERGAST: That is why, sir, we had a test run with the soils from the Cavalcade site to make sure that this process will work.

MR. MARTIN: Well, the soil in Texarkana is not the same type of soil as they are here.

MR. PENDERGAST: That is right. And that is why we had a test run with the soils at South Cavalcade to make sure that it would work. I mean, there is not much more we can say.

MR. WRIGHT: Yes. The type of contaminant that we are looking at up at Texarkana is the same type of contaminant as we are looking at here. Both sites were operated by the Koppers Company. They used similar types of materials, similar methods.

So the main thing, I think, we are talking about here is that we are looking at a similar type of contaminant. Now, the soil certainly does have some influence, but we believe that based on the type of contaminants that we are looking at, being similar at both sites, and the results of the tests that we have run, that the system will work.

I.R. MARTIN: I don't know how much of your tests over there shows coal tar, but we used to buy 70 percent creosote, 30 percent coal tar from Koppers over there that

we used in the processing plant, and at one time we bought some 60-40. And in order to move that product, we had to bring the temperature above 400 degrees, before we could even pump it.

So, you see, you have gct a really -- and I don't know just what the temperature you have to have on the coal tar that they use on the street, what temperature it is, to move it. But it is pretty high, too, over 400 degrees. Did you realize that?

MR. PENDERGAST: Yes, sir.

MR. MARTIN: How are you going to get -- what are you going to get in there to melt that stuff, if we had to bring it up to over 400 degrees heat to pump?

MR. PENDERGAST: First of all, the stuff is liquid right now, down in the equifer, and it is movable. It is not the same stuff that you worked at with your free product at the Houston Creosoting Company. We have been able to make it move where it is now.

MR. MARTIN: In other words, we have had from 1962 to 1988 for the natural soil and the natural flow of the water there to weaken it from the product that we used over 20 years ago?

MR. PENDERGAST: I don't know exactly what the process is that caused it, but it is not the raw product creosote that you dealt with for Mr. Aaron up there at

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1 Houston Creosoting Company.

It is the residual that comes from the wastewater lagoon that has leached downward. It is mobile; it moves; and it can continue to move. It is not sitting there as a solid tar that needs to be heated up.

Otherwise, there wouldn't be a problem.

MR. MARTIN: You said at one place over there there is a pocket of creosote.

MR. PENDERGAST: That is under the coal tar plant.

MR. MARTIN: It is under the -- okay. So that is -- okay. Thank you.

MR. WRIGHT: Any other comments or questions?
(No response.)

MR. WRIGHT: Okay. If not, we appreciate your coming out tonight. Thank you for your comments. The public comment period does continue through September 19. If you have any other comments you would like to make, go ahead and address them to Ellen Greeney at the address that is shown on this page of your handout.

Thank you very much.

(Whereupon, at 9:00 p.m., the public hearing was concluded.)

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South Cavalcade Superfund Site

HEARING DATE:

August 29, 1988

LOCATION:

Houston, Texas

I hereby certify that the proceedings and evidence herein are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the United States Environmental Protection Agency and that this is a true and correct transcript of the same.

Date: September 6, 1988

Official Reporter

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